

FIGURE 1

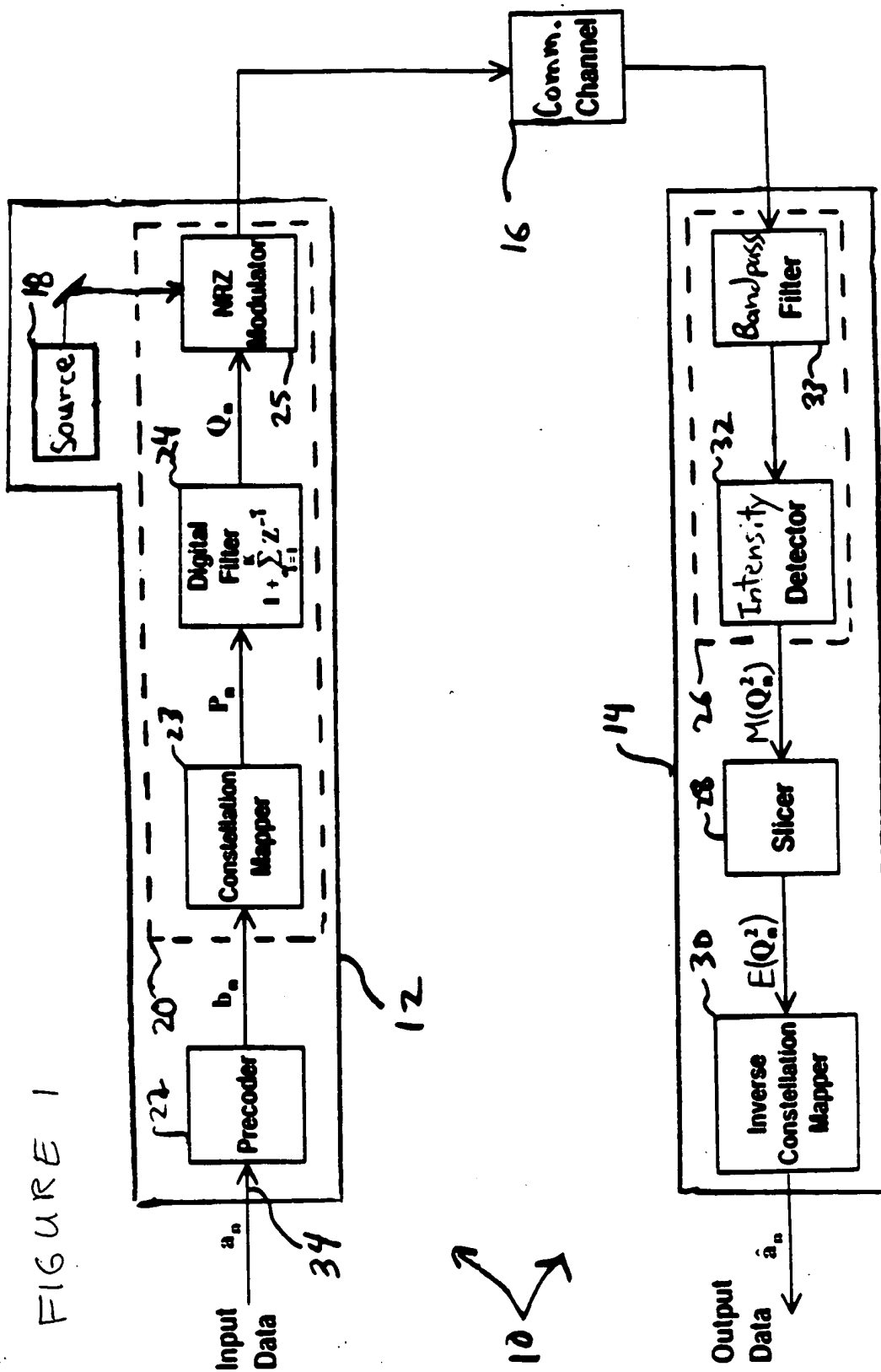
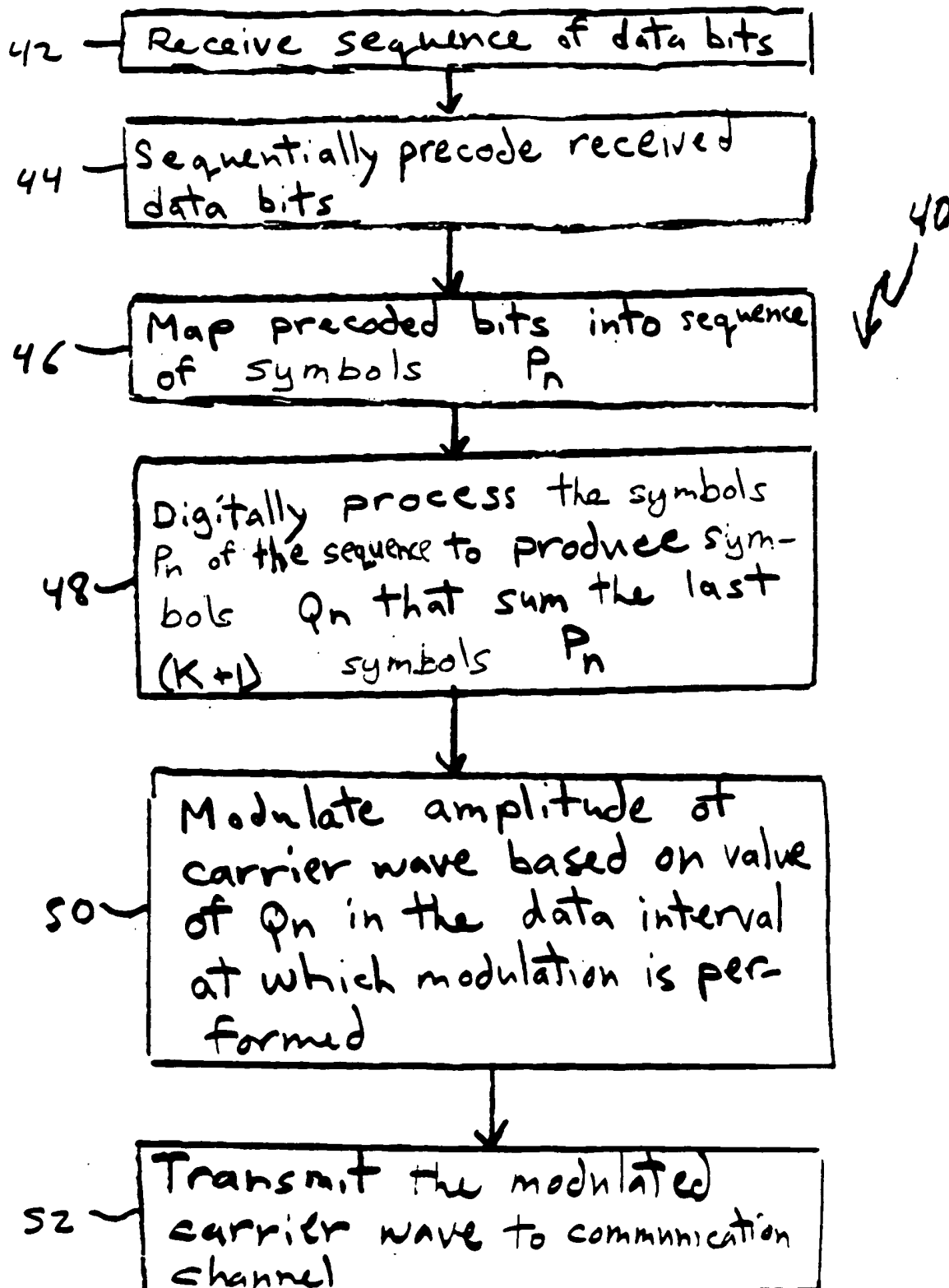
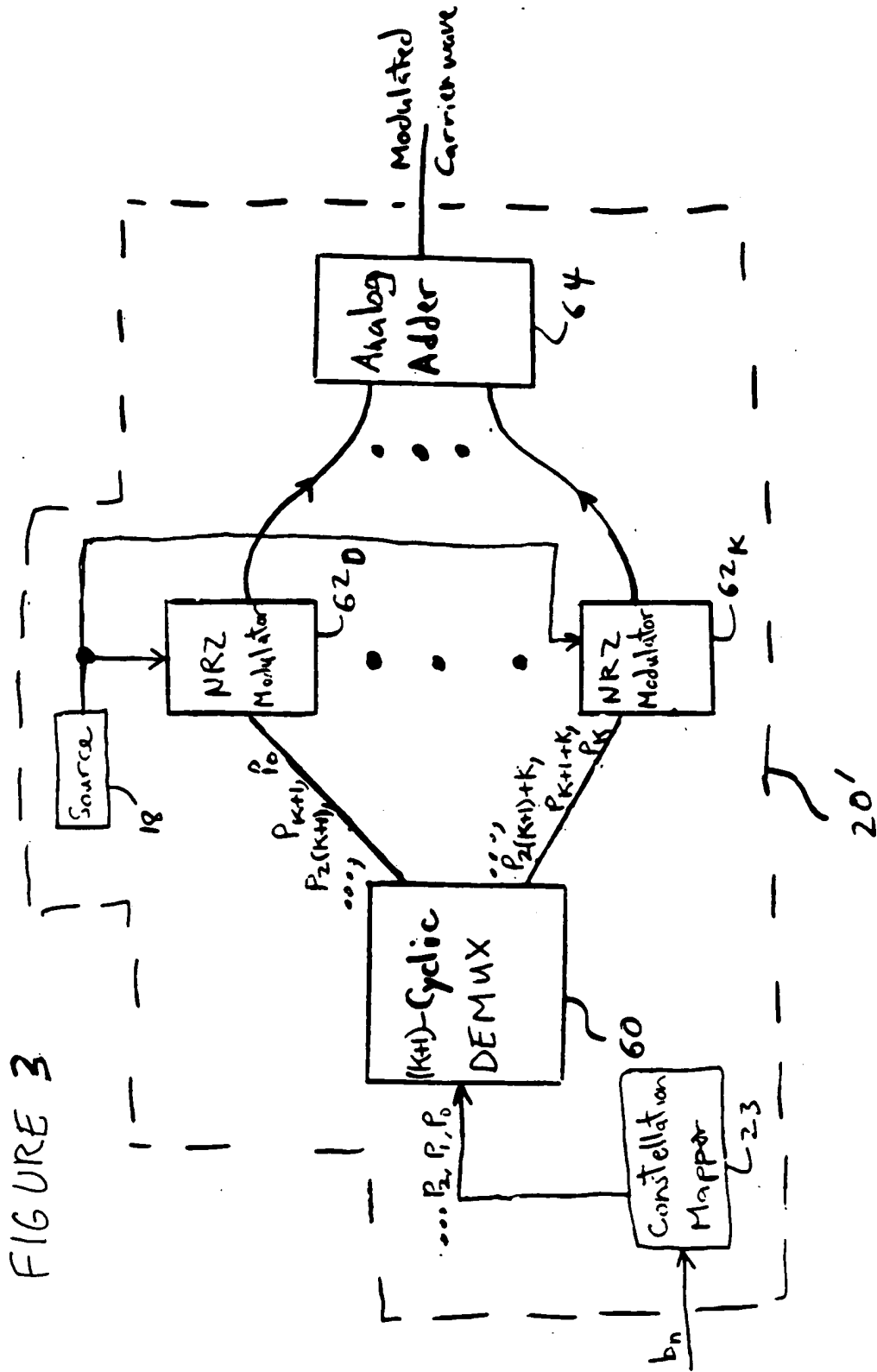


FIGURE 2



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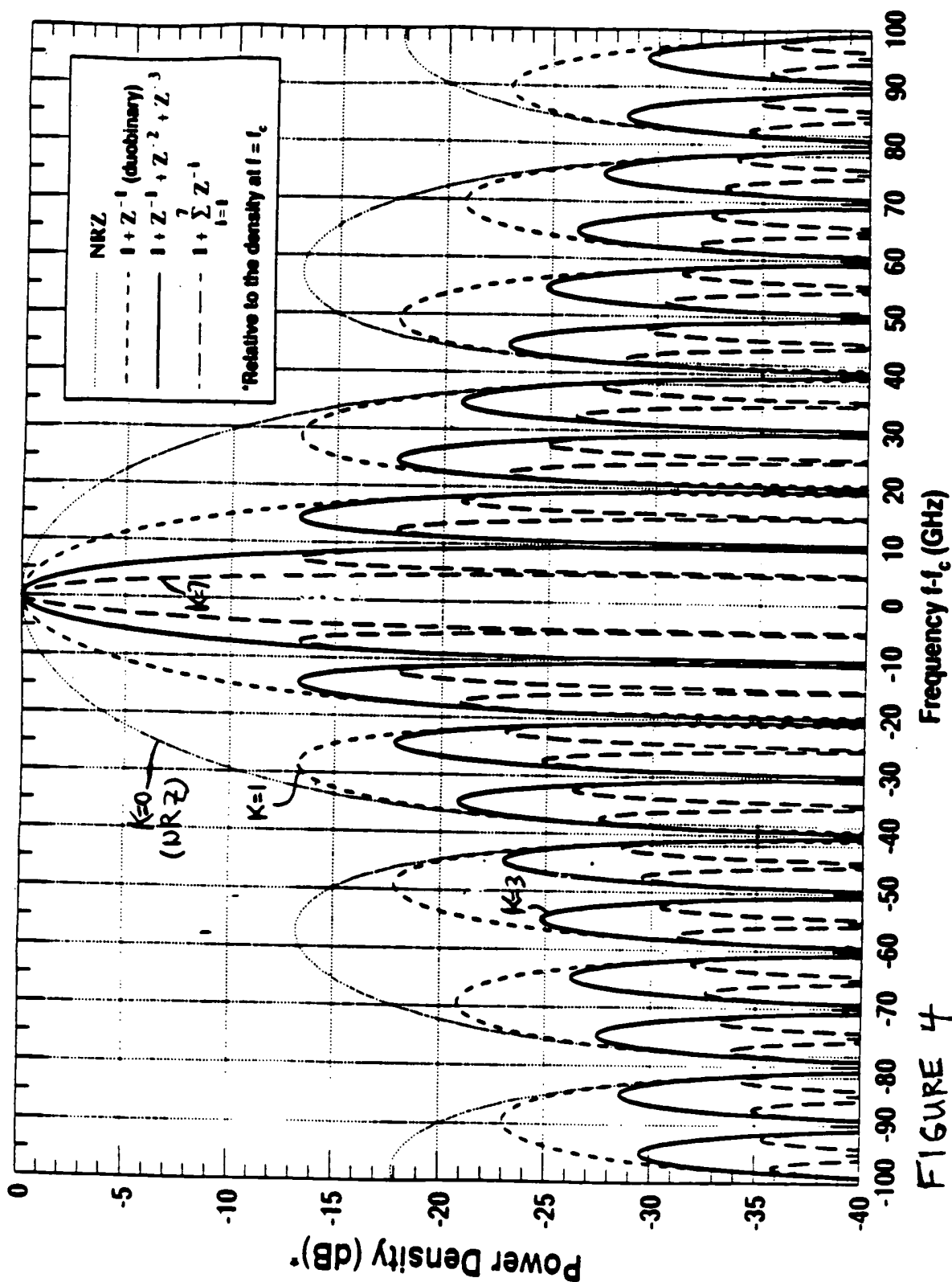
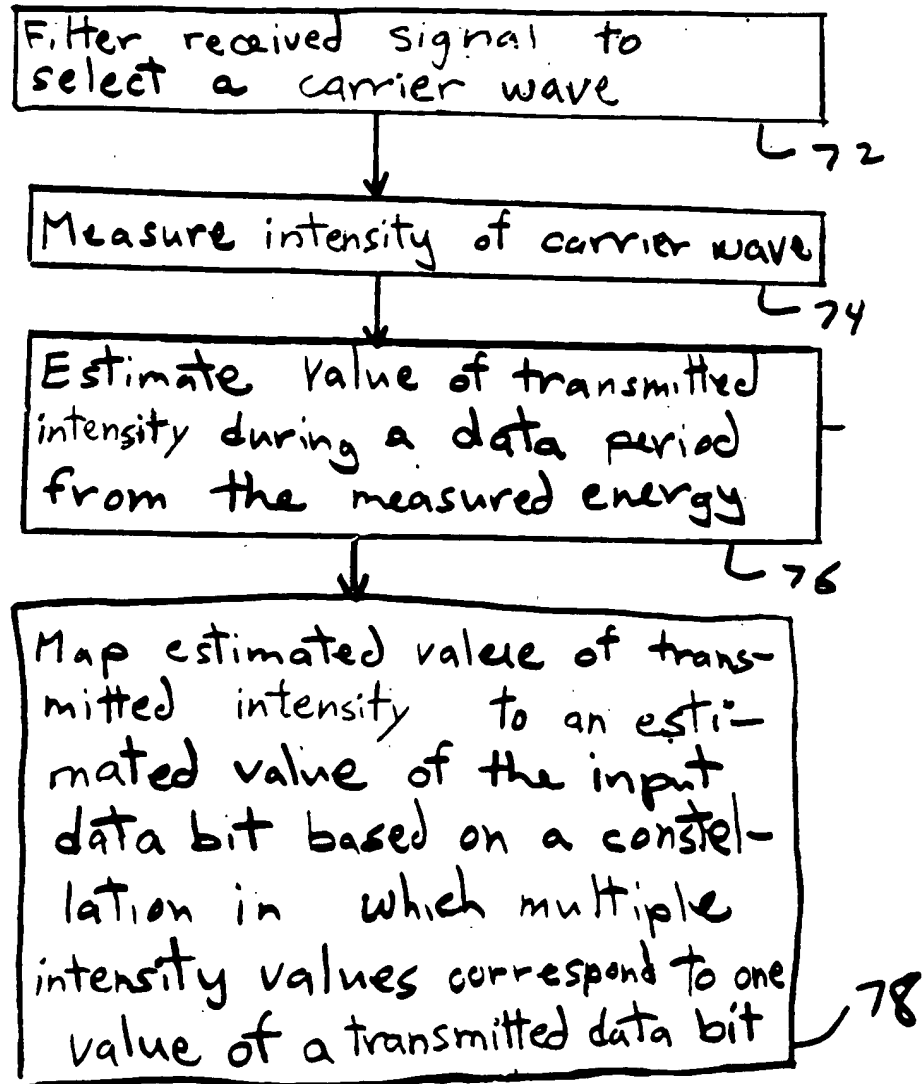


FIGURE 4



70

Figure 5

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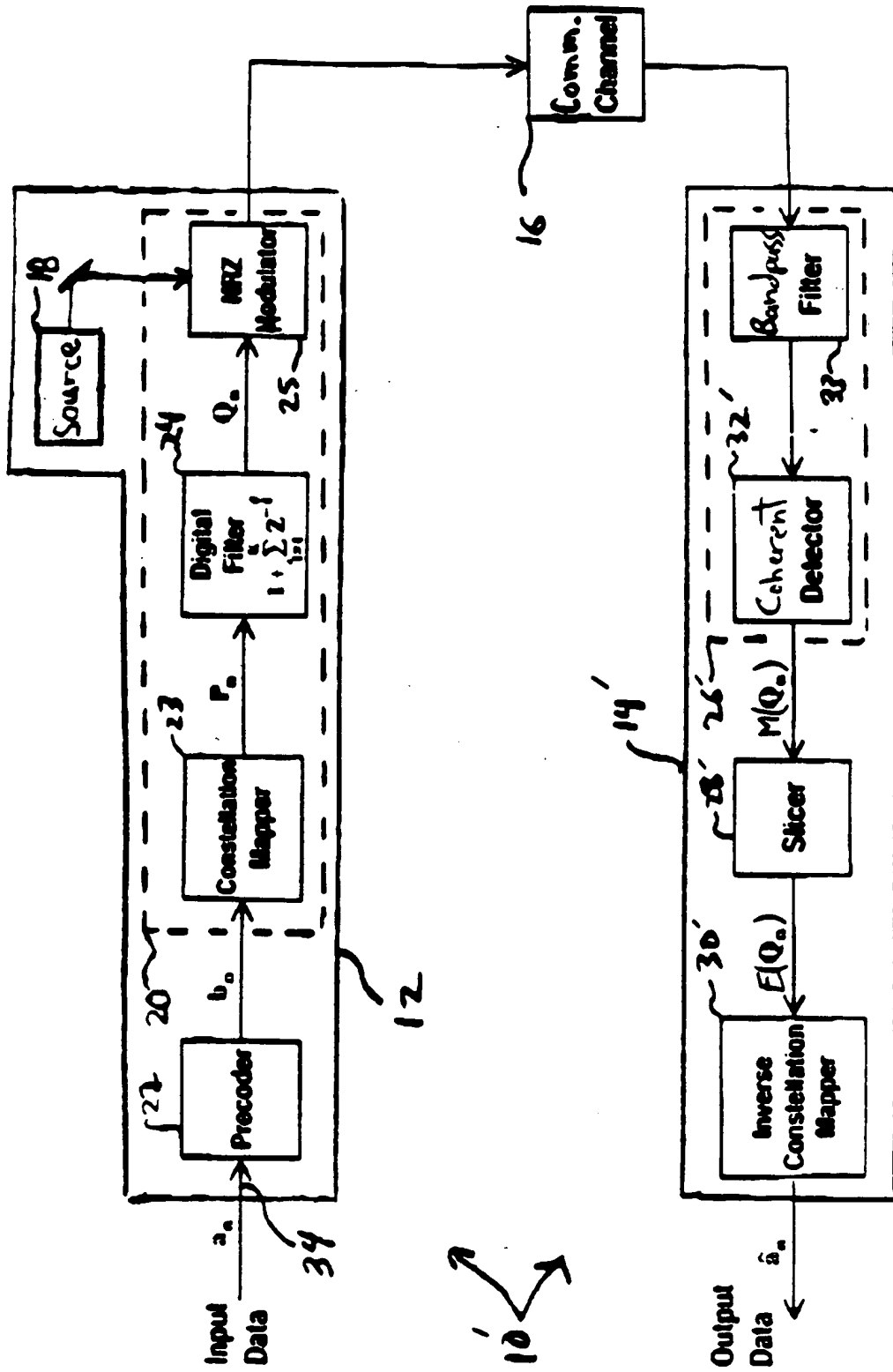


Figure 6

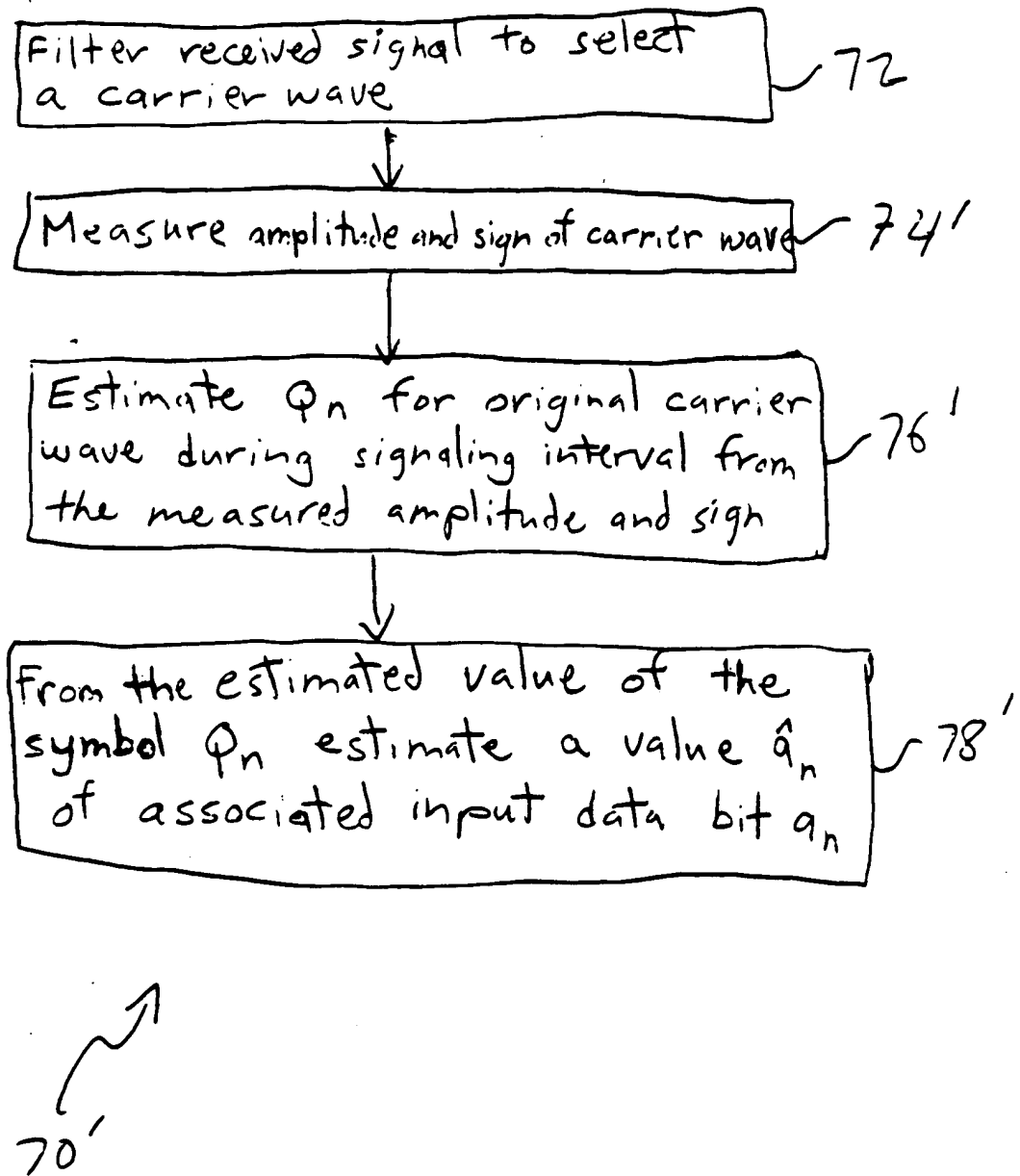


FIG. 7

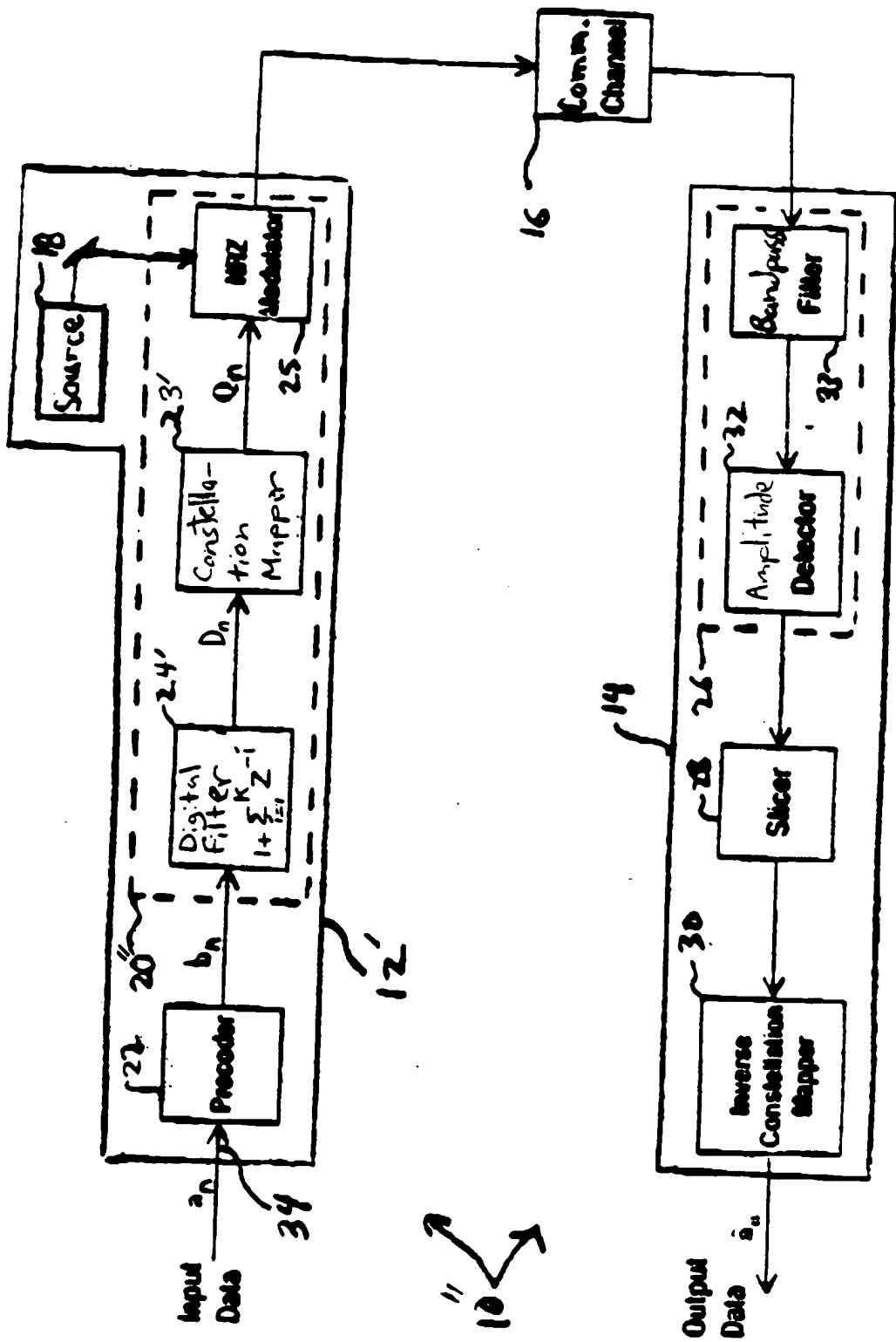


FIGURE 8



Digital Filter	Normalized Signal Bandwidth*	Loss in Receiver Sensitivity (dB)*	Number of Transmitter Signal Amplitudes $Q_n$	Number of Receiver Signal Amplitudes $Q_n^2$
$1 + Z^{-1}$ (duobinary)	$\frac{1}{2}$	0	3	2
$1 + Z^{-1} + Z^{-2} + Z^{-3}$	$\frac{1}{4}$	3	5	3
$1 + \sum_{i=1}^5 Z^{-i}$	$\frac{1}{6}$	4.8	7	4
$1 + \sum_{i=1}^7 Z^{-i}$	$\frac{1}{8}$	6	9	5
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
$1 + \sum_{i=1}^{15} Z^{-i}$	$\frac{1}{16}$	9	17	9

\*Relative to a baseline on/off NRZ modulation.

FIGURE 9